

WAVECOM INSTRUMENTS PTY LTD®

Fully Integrated

TEST n PRINT UNIT

User Manual

Black Phantom – 10/ 20Amp Model

**Australian Designed & Manufactured to comply with testing requirements of
AS/NZS 3760:2010 Standards.**



*Note: If required TnP Firmware can be updated by Wavecom
only to comply with potential Changes in Testing Standards*

Head Office - Wavecom Instruments Pty Ltd
257 Grange Road, Findon SA 5023
Phone: (+61) 08 8243 3500
Fax: (+61) 08 8243 3501
Email: sales@wavecom.com.au
Web: www.wavecom.com.au

Perth
Unit 2/17 Casino Street, Welshpool, WA
Phone: (+61) 08 9353 1943
Fax: (+61) 08 9353 4319
Email: saleswa@wavecom.com.au
Web: www.wavecom.com.au

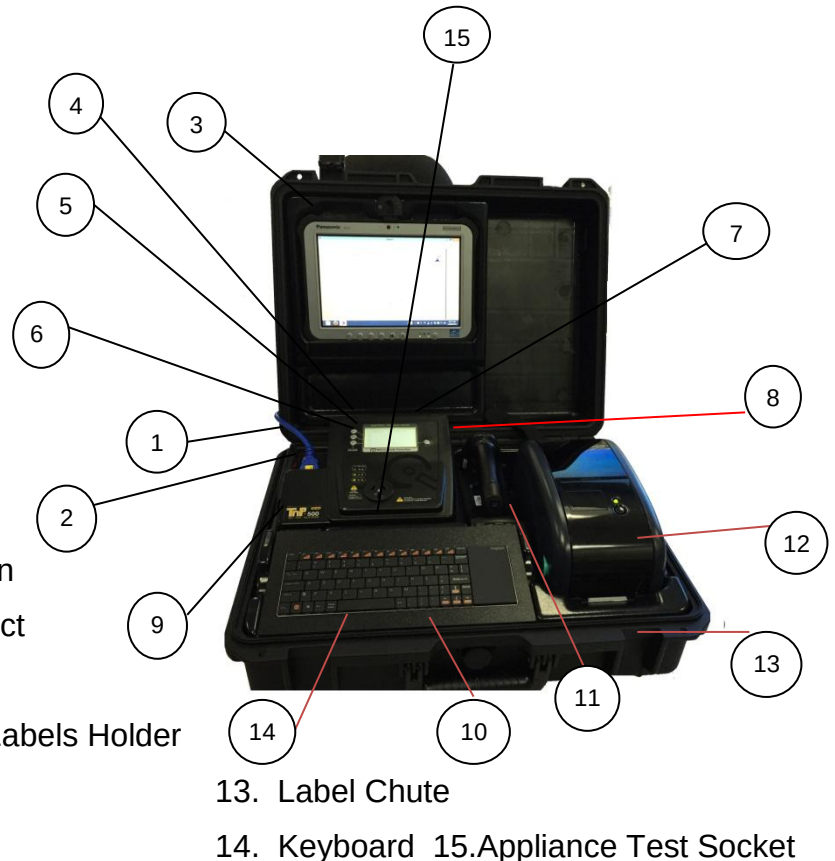
Melbourne Office
772A Station Street, Box Hill, Victoria 3128
Phone: 1300 793 301
Fax: (+61) 03 9897 4766
Email: salesvic@wavecom.com.au
Web: www.wavecomrentals.com.au



Fully Integrated Test n Print Unit 20A ver. Shown

Instrument description

1. Power On/Off Switch
2. Unit Inlet Power Socket
3. Panasonic Toughbook
4. Function Key F1
5. Function Key F2
6. Function Key F3
7. LCD / Results Display Screen
8. Enter return Key / Menu select
9. IEC test socket
10. Wireless Keyboard & Extra Labels Holder
11. Wireless Scanner
12. Wavecom Printer



Test n Print Interface Panel

Located under Keyboard

Under
Keyboard
Accessories
Compartment

Cable
Lead
storage area

3 user available USB ports

Cable
Recess
Outlet



Warning: Do not plug anything into the left side USB port it is reserved for the installed Wavecom device.

Table of Contents

Important Information.....	4
Contents	4
Precautions	4
Manufacturer Recommendations	4
Safety Warning.....	4
Competent Person	5
Disclaimer.....	5
Limited Warranty	5
Technical Information.....	6
Class 1 (Earthed Appliance) Construction	6
Class 2 (Double Insulated) Construction.....	6
Testing of Electrical Equipment.....	7
To Change Test Voltage	8
Integrated Tests	8
Supply Mains Test.....	8
NCNT Test	8
Visual Inspection (First Test)	9
Powering on the Tester	9
TnP Options Menu.....	10
Introduction.....	10
Other Features	13
Optional Accessories.....	14
SPECIFICATIONS TnP® Series	14
Black Phantom Extra Features.....	16
Meter Mode	16
WinPATS Professional Asset Management Software.....	18

Important Information

Contents

Integrated Test N Print System including Panasonic Tablet
User Manual
Wireless Keyboard
Wireless scanner
Wavecom TT Barcode Printer
WinPATS FE Software (Full Version - Asset Management)
Self Contained in Heavy Duty Case

IEC Test Lead (500mm Orange)
USB – PC Cable

2 x Rolls /500 Labels - 2 x Resin Ribbons
Earth Lead with Alligator Clip (1800mm black)
Locking IEC Power Cable (1800mm Blue)
Manufacturer's 1st Calibration Certificate
(Valid for 12 months from date of purchase)

Important: Please Register your WinPATS Software and Test n Print Unit with the provided documentation or online via our website www.wavecom.com.au

Precautions



Unique Locking Power Cable:

Please make sure **yellow lever is pressed** prior to removal of the locking power supply cable - 10A & 20A Models. Failure to do so, combined with excessive force may damage the rear panel.

This revolutionary locking, removable cable is intended **not to dislodge** during test procedures.

Note: 10A ver. plug illustrated. 20A ver. is similar.

Manufacturer Recommendations

Calibration: The AS/NZS3760:2010 Standard recommends a routine calibration / verification of this unit to ensure the accuracy of readings on a 12 monthly basis, or as prescribed under any additional local Regulatory requirements.

Note: Only Wavecom Instruments or its Authorised Service Agents are permitted to repair and Calibrate this Instrument. Failure to perform unauthorised service or repair may void all warranties and Calibration Status.

Safety Warning



This 4th Generation *TnP* series of products have been designed to meet stringent safety requirements, however no device can completely protect persons from the consequences of incorrect use.

The testing of Electrical appliances requires that extra care and caution is taken at all times to ensure personal safety.

The Manufacturer also advises that appliance testing should be conducted by a **Competent** and suitably trained person, as referred to under the current Standard AS3760:2010, as well as any additional legislation or rulings in different states.

If in doubt, the manufacturer suggests the user contact their responsible Authority.

For maximum safety, always ensure that the following advice is followed:

- The equipment being tested is in good condition / visual check.
- All user instructions are followed.
- Double check power supply connections. (note LED status)
- Always use specified fuses and protection devices.
- Do not use leads that require repair or are damaged.
- If you are unsure, call a licensed Engineer/Electrician.

* See P.6 AS/NZ 3760:2010 def.

Competent Person

To ensure that all electrical equipment or devices are inspected, tested and tagged correctly, regulations require that a 'competent person' such as a Licensed Electrician be employed to perform the required tests.

Please refer to the above definition as described in the current **AS/NZ-3760:2010 Standard** and in addition, to any other local legislation or jurisdictions as may be relevant in your State.

EXAMPLE:

A person competent to undertake Inspection and Testing of electrical equipment must have:

- Knowledge and practical experience of electricity and its hazards.
- A clear understanding of precautions to avoid danger.
- The ability to recognise at all times whether or not it is safe for work to continue.
- The ability to carry out visual examinations of electrical equipment.
- The ability to distinguish between electrical equipment that is double insulated and equipment that is earthed as well as being able to identify the appropriate test for each type.
- The competency to safely carry out the Earthing Continuity, Insulation Resistance or Leakage Test and RCD tests on electrical equipment.
- The knowledge of how to use the relevant testing instruments, interpret and record the results for compliance with the Standard/Workplace requirements.
- The knowledge to be able to correctly recommend the frequency of testing required.

Due to the potential hazards of electrical testing, due care must be taken at all times.

Disclaimer

Limited Warranty

The Manufacturer warrants its products against defects in materials and workmanship for a period of 12 months from the date of purchase. During the warranty period, the manufacturer will repair (or at its option replace at no charge) the product that proves to be defective. This warranty does not apply if the product has been damaged by accident, abuse, misuse or mis-application or as a result of service or modification by anyone other than manufacturer of the TnP.

The TnP product range of devices or its manufacturer IS NOT RESPONSIBLE FOR INCIDENTAL OR CONSEQUENTIAL DAMAGES RESULTING FROM THE BREACH OF ANY EXPRESS OR IMPLIED WARRANTY, INCLUDING DAMAGE TO PROPERTY AND TO THE EXTENT PERMITTED BY LAW, and DAMAGES FOR PERSONAL INJURY. The Distributors of this product cannot assume liability or responsibility for any loss or damage resulting from the use of this device.

The TnP manufacturer reserves the right to discontinue models, change specification, price or design, at any time without notice or obligation.

Technical Information

Class 1 (Earthed Appliance) Construction

(Single basic insulated and protectively earth equipment)

This type of product design provides two safety barriers between all live conductors at dangerous voltages and the equipment user.

The provision of basic insulation between exposed metal parts and live parts is the first barrier to provide basic protection against electric shock.

The second safety barrier is by the connection of exposed (accessible) conductive (metal) parts to the protective earthing conductor (earth wire) in the fixed wiring of the device/Installation.

The protective earthing terminal of the equipment must be marked with the word "earth" or the symbol "E" or the symbol for Earth Terminal or Protective.

To perform this test a continuous earth loop must be made between the exposed conductive material (metal) and the TnP appliance tester. This is done by means of connecting the earth lead with the crocodile clip/probe attached to a GOOD earth point (paint & coatings will not provide effective connections) and the DUT (Device Under Test) plugged into the TnP appliance testers' DUT socket. The Maximum allowable limit is less than 1.0 (ohm).

Refer Page 8 on how to extend time to get a true earth connection (**Unique Earth Bond Test Feature**)

Class 2 (Double Insulated) Construction

(Double insulated equipment)

This method of construction employs two safety barriers comprising two layers of insulation between dangerous voltages and the user of the equipment.

The first layer of insulation is formed around the live conductor and is termed 'the Functional Insulation'.

The second layer of insulation is termed 'the Supplementary Insulation'. In Class II equipment, protection against electric shock does not rely on basic insulation only, but has additional supplementary insulation such as double insulation or reinforced insulation provided, there being no reliance on precautions in the fixed wiring of installation.

Class II equipment is marked with the words "DOUBLE INSULATION" or the symbol



For double insulated under Safety Symbols:

Note 1 – Double Insulation is insulation comprising both basic and supplementary insulation.

Note 2 – Reinforced Insulation is a single insulation system with a degree of protection against electric shock, which is equivalent to double insulation.

Testing of Electrical Equipment

Many testing personnel have some reservations in testing sensitive, electronic equipment using a 500V DC insulation test. There is a perceived fear of causing internal damage from over voltage. With the introduction on the TnP Range of appliance testers, these concerns are alleviated.

The TnP Range of electrical portable appliance testers is safe to test electronic equipment as the tests are carried from Active-Neutral (shorted by a relay inside the tester) to Earth. No dangerous voltages pass through in this mode to the internal components of the DUT (Device Under Test). If these tests are done using an Insulation Tester only and the user tests Active to Neutral, this would be a cause of potential damage, **this is why the TnP product range is far safer to use.**

Some changes may be required in certain configurations where fitted surge protection devices (**MOV's**) in the DUT may cause a failed test result. Applying 500V in these situations can cause the surge protection devices to trip, therefore conducting the applied voltage to earth, thus showing a failure of insulation. In these instances the test voltage should be changed to 250V then retest. If DUT still fails, check with the DUT Operators Manual or an electrician. *[for details see - 'Double Insulation Test' 250/500VDC to change test voltage].*

Under these circumstances, it would be difficult for any damage to occur to either the surge protection device or the DUT, as there is insufficient current generated by the TnP test unit.

Leakage Test:

If there are any doubts with insulation testing of the equipment, the standard (AS/NZ3760 since 2001) allows for an alternative test method. A Leakage Test can be performed instead. (The TnP – Series are designed to perform these tests).

NOTE: 10Amps MAXIMUM Resistive Load only (Standard TnP Series units).

A Leakage Test applies power to the Device Under Test (DUT) and measures the imbalance of leakage current from the DUT between the active and neutral conductors. The leakage is tested to the limits specified in the standard and a Pass/Fail result as well as a digital reading is provided to ensure that the user gains as much information as necessary.

Earth Continuity Test, commonly called EARTH BOND TEST:

Note: Part of normal (Class 1 test) procedure

Use supplied IEC–Croc clip lead or optional accessory 'WCM-Probekit'.

The TnP.500 unit conducts earth continuity tests at approx. 200mA. Continuity tests at higher currents are not required or recommended on certain equipment as this may cause severe damage or premature failure to the Device under test (see AS/NZS 3760:2010).

Unique Earth Bond Test Feature

Note: Test time with the new TnP-500 series can now be user controlled. This function enables testing personnel to extend the **Earth Bond** test time by 30 second increments!

This is achieved by momentarily pushing the ENTER  button once, during the test.

The TnP-500 will then add 30 seconds to the test time for ENTER button press.

This feature has been incorporated to provide extra time to achieve an adequate physical connection, or confirm any possible *INTERMITTENT* issues. There may be situations where the condition of equipment, coatings applied, or suspect wiring breaks may alter the earth connection path of the device under test.

Benefit to test personnel is to save time by not having to continually repeat tests in a less than perfect situation.

3 Phase Testing: *Optional equipment required

3 Phase appliances can be tested by the TnP series appliance testers. As the insulation tests are from Phase to Earth, only a 500V insulation test is required. This test may be carried out by using the *optional* adaptor 'WCM-3PH-MADP' *[See 'Optional Accessories' for details.]*

Note: The TnP500 series will not perform a 3 Phase Leakage test.

Contact Wavecom Instruments Pty Ltd for information on appropriate testers.

To Change Test Voltage

To change the test voltages select the "change ins" from the options menu. Please refer to the **special functions** section of this manual.

Please Note: The TnP - Series will automatically default to 500VDC when restarted.

Integrated Tests

Supply Mains Test

The Supply Mains Test checks the polarity and connectivity of the mains supply by LED's. This test is also a part of all the testing functions of this unit.

	If the N-E (red) light is on and you need to conduct load/leakage tests DO NOT CONTINUE. If you are carrying out standard Insulation and Earth Bond tests, it is generally safe to continue. This light will glow if a voltage difference lies between the neutral and the earth, or if no earth is connected to the TnP- Series supply. (If working with a generator or inverter, this is most likely to occur and you may need to consult an electrician before proceeding).
	If both the A-E & A-N (green) lights are on but not the N-E (red), mains supply test is ok, continue to test.
	If both of the N-E (red) & A-E (green) lights are on, consult an Electrician, as there is a fault with the Mains Supply.

NCNT Test

(No Connection No Test)

The TnP – Series appliance testers ensure that the appliance is plugged in and switched on. This test is also a part of all of the testing functions of this unit.

This test function ensures that the appliance is plugged into the TnP appliance tester and that it is switched on. If the device is not plugged in and the TnP appliance tester detects that no device is present, plug in to continue the test or confirm 'QUIT' to return to the main menu.

If for some reason the NCNT circuit does not detect the device but it is actually plugged in and turned on, the operator will need to override the NCNT function.

To do this Over Ride **Press F3**

With an emphasis in the **Standard AS/NZ3760:2010** for carrying out the live testing the TnP - Series appliance testers will indicate for you to check if the device is plugged in and switched on. If the device is not plugged in and/or recognised, it may require a live test therefore making it necessary for the operator to carry out a full functional Leakage Test (Available on all models of TnP – Series). This function is to ensure that correct testing procedures are carried out in accordance with the Standard AS/NZ3760:2010.

***Optional**

Note: When using 3-Phase adaptors the **NCNT** function will need to be over ridden by pressing the 'OK' key prior to the TnP appliance tester performing the assigned test. Some single Phase appliances controlled by contactors will also require manual over ride. In some instances holding the 'ON' button will enable the NCNT function to work normally.

Visual Inspection (First Test)

VISUAL INSPECTION IS TO OCCUR BEFORE ANY OTHER TEST IS CARRIED OUT BEFORE USING ANY OF THE RANGE OF TnP APPLIANCE TESTERS

- There is no damage or component defects to the accessories, plugs, outlet sockets or connectors (physical).
- There are no cracks &/or abrasions.
- There are no exposed inner cores or conductors (flexible) and the supply cords are not twisted or distorted.
- Any Fuse / Over load protection components (if fitted) are checked.
- All labels, markings and warning indicators (of the maximum load to be connected to the device) are legible and intact.
- The insulation is not damaged in any way i.e. melted, cuts or abrasions. There are no iron filings in the insulation. There is no insulation tape on the lead.
- Any flexible cords and/or leads are effectively anchored (glands and grommets intact).
- All covers or guards are in place and secure as intended by the supplier/manufacturer.
- All safety devices and systems are in good working order. (i.e. overload latches & buttons).
- No dust &/or dirt obstructs any exhausts or ventilation outlets.
- All controls are working properly and are secure and aligned.

Important: If result is a FAIL!!

If any Equipment **FAILS ANY** of the above, it should be deemed to have **FAILED** the Visual Test, and therefore no other tests need be performed. If this is the case the Equipment should be tagged with a **DANGER TAG** and removed from service. It is recommended by the manufacturer and distributor of this product that it **SHOULD NOT BE RETURNED TO SERVICE**. To do so would be considered unsafe.

INSTRUMENTS

Powering on the Tester

When the tester is powered on first you will see a Wavecom splash screen and the firmware revision installed in your tester it will then revert to Main Menu.

Initially the printer's status light will be orange but after about 5-10 seconds it will change to green. The tester will not print unless the printer light is solid green. A flashing red status light can indicate a media or general printer fault.

When the testers memory has been erased it will look like the following screen.

Adding a Site

Auto Generate Barcode Function If required the auto generate barcode number can be set before testing. The auto generate is always displayed in the bottom left hand corner of the new barcode screen.

TnP Options Menu

Introduction

Here you can adjust the way the TnP behaves under certain tests and other functions. Some TnP options may not be available to some TnP versions.

To access the TnP options menu:

- From either the Enter barcode screen (memory unit) or the main menu 'A' screen hold down the enter button,  and then press the F2 key 

You should now be in the TnP options screen. The screen displays 1 option at a time.

- You can select this option by pressing the enter button. 
- To select the next item press the F2 button. 
- Pressing the F3 button  escapes out of the TnP options menu.

The TnP Memory model options list.

- Change Insulation Voltage
- Leakage Test Time
- Audio Option
- Data Results Screen Display Hold Time
- Label Options
- Barcode Options

Change Insulation Voltage - All TnP models

Some DUT contain MOV's (metal oxide varistor) or commonly known as spike protection devices. These limit the mains voltage to about 280VAC. If you attempt to perform a 500VDC insulation test on one of these devices you will get a failed result. To fix this problem select the 250V option.

- Press the  key to select the 250V option.
- Press the  key to select 500V option.

You can also set the unit back to 500V by switching the mains power off and on again. The default insulation voltage is 500V.

Leakage Test Time

The **leakage test time is USER adjustable**. You may need to adjust timing in this feature if the DUT has a long power up time or requires special power on procedure. Default time for **Leakage Test** is 20 seconds. From this menu you can change the test time from 5 seconds to 28800 seconds. Adjusting to any less than 5 seconds will put the test time to infinite.

- Press the  key to increase the test time.
- Press the  key to decrease the time.
- Press the  key to set the new leakage / power test time.
- Press the  key to escape out of the menu. No changes saved.

Audio Option - All TnP models

Enabling the audio option will make the TnP use a sound to indicate a pass or a fail at the end of a test. If the TnP unit has never been altered then the audio beep is disabled.

- Press the  key to disable.
- Press the  key to enable.

Result Hold time option - all TnP models

Note Carefully: This setting will change the default display times and will remain until user re-sets to another preferred value.

The feature enables the user to change the displayed time of the **Test Result** from approx. 1 – 90 seconds.

To enable Result Hold time option, from Main menu A, hold ENTER key and press **F2** key. Release ENTER key. Further pressing **F2** key four times cycles you to the Result Hold setting screen. Pressing ENTER key (OK) will display the settings page. Select your preferred timing by pressing **F2** or **F3** buttons (Increase or Decrease) as observed on the LCD screen.

Once the required result is shown on the LCD screen, press the ENTER key to lock new Result Hold time. The TnP-500 will return to Main menu A.

Please note: as a further convenience, if Result Hold time during **normal testing** needs to be reduced, simply press the ENTER key to rapidly move to the next test sequence. Alternative is to re-set the Result Hold setting again, as above.

Label Options - Only on Selected Memory Models

Changing the label options changes the way the printer behaves or how the tag is printed. When selecting this option you will be prompted with 3 different options. Enable / Disable, Choosing a label set and modify the due date.

Enable / Disable

Selecting this option will **enable** or **disable** the tag information being sent to the zebra printer. The printer can also be disabled by switching the printer off from the power switch located on the side of the printer. Once the printer is switched back on it will not print out the records that were created while the printer was switched off.

- Press the  key to disable.
- Press the  key to enable.

Choose Label Set:

If you have more than one logo in the printer's memory (multiple company logos) this function will allow you to select the various logos. If you have one logo stored in the printer then you only need to choose Label 1. If you choose anything else a blank tag will be created. If you have multiple logos then the next one to choose would be label1 and so on. If you are unsure which one to choose select the Label 0.

- Read the onscreen message and then press the  key.
- Press the  key to increase the label number.
- Press the  key to decrease the label number.
- Press the  key to select the displayed label number.

Customise Next Test Due Dates

Enabling this feature will allow **customise next test due** dates when testing equipment. When this feature is disabled (default setting) the **next test due** date is determined by the test date plus the frequency of test. When enabled a custom date can be set after visual test in TnP models.

- Press the  key to enable.
- Press the  key to disable.

Stop Labels Spooling On Power On

If the printer is spooling tags on power on then it has reverted back to the factory default settings. To stop this choose the F3 key when prompted. The printer must be switched on and have a solid green light. If not, the printer won't receive the command.

- Press the  key to enable.
- Press the  key to disable.

Barcode Options - Only on Selected Models

Barcode options refers to modifying the auto generate barcode function. The **barcode options** can be selected in two ways. Either holding F3 down when on the new barcode screen or by the TnP options menu. Both have the same menu options expect when entering **barcode options** VIA TnP options. These menu options are:

- Set the number of digit for barcodes.
- Set the auto generate barcode number
- Use leading zeros for the auto generate number.
- Search all sites on barcode search (only available from TnP options menu).

Search All Sites

Allows the TnP to **search all sites** listed in the site names section for the given barcode. If this option has not been altered then by default **search all site** is disabled. When disabled the TnP can only search for barcodes that are in the site selected (Indicated by the site name in new barcode / search barcode screen).

Search all sites is useful disabled and enabled. For example, you may have many items with the same barcode number in different sites. Disabling this feature allow you isolate a particular barcode with ease. If you have a barcode but you are unsure which site it is in then you should enable **search all sites**.

Be careful when **search all sites** is enabled. If a barcode is found in another site the site name will change when you return the new barcode screen.

Other Features

Barcode Printing Function - Only on Selected Memory Models

This utility will print out barcode labels from what is typed on the screen. The idea is to save time by storing these barcodes in a book or collection. From here you can quickly scan a barcode without having to retype the text back into the TnP unit. To access this feature:

- Hold the  key from the new barcode / search barcode screen.

You will be required to select your printer model. The Wavecom printer has a different print orientation to the Wavecom model. Selecting the wrong printer model will make the tag print incorrectly.

- Press the  key if you have a Wavecom or plus model printer.
- Press the  key if you have a Wavecom model printer.

Type the text you want for your barcode. If you go past the end of the screen the text will wrap. A maximum of 32 characters can be entered.

- Press the  key to print the barcode.
- Press the  key to return back to the new barcode screen.

INSTRUMENTS

Optional Accessories

500mm Earth Strap	Part No: TnT-ES 500
3-Phase Adaptor 20A & 32A 5pin + 5pin	Part No: WCM-3PH-MADP
HBC Fuse	Part No: WCM-HBC10AM205
Isolation Transformer for RCD testing	Part No: WCM-ISOT 11
Probe Kit	Part No: WCM-Probe
Wavecom Printer Labels	Part No: WCM-ZL24 (Colour)
Wavecom Printer Ribbons	Part No: WCM-ZRIB24
WinPATS Extended Support (12 months)	Part No: WCM-WinPATS Support
IEC 20amp-10amp Current Limited Adapter Cable	Part No: WCM-IEC2010 Suitable for TP500X Model Only



SPECIFICATIONS TnP® Series

Mains Supply Test

- ▶ Checks Polarity and continuity of mains supply by LED indicators (A-N, A-E, and N-E). (Flashing red LED indicates test fail)

CLASS 1 Earthed Appliance

- ▶ Appliance Check: Ensures appliance is plugged in and turned on.
- ▶ Earth Bond Test: 200mA test current. Pass level Less than 1.0 Ω . Measurement: 0.01 Ω to 10 Ω .
- ▶ Insulation Test: 500VDC / 250VDC. Pass level Greater than 1M Ω . Measurement: 0.1 Ω to 10M Ω . *See also Leakage Test

CLASS 2 Double Insulated Appliance

- ▶ Appliance Check: Ensures appliance is plugged in and turned on.
- ▶ Earth Bond Test: 200mA test current. Pass level Less than 1.0 Ω . Measurement: 0.1 Ω to 10 Ω .
- ▶ Insulation Test: 500VDC / 250VDC. Pass level greater than 1M Ω . Measurement: 0.1 Ω to 10M Ω . *See also Leakage Test

Extension Leads

- ▶ Earth Bond Test: 200mA test current. Pass level Less than 1 Ω . Measurement: 0.01 Ω to 10.0 Ω s
- ▶ Insulation Test: 500VDC / 250VDC . Pass level Greater than 1M Ω . Measurement: 0.1 Ω to 10.0M Ω .
- ▶ Continuity/Polarity Test: 250VAC check continuity and polarity of leads. Displays Pass/Fail.

Leakage Test *

- ▶ Leakage Current: 0 to 30.0mA at 200 to 265V
- ▶ Earth Leakage Test: 240VAC Mains. Pass level 1, 2.5, 5.0 mA leakage test levels with up to 10Amp load operation.
*TnP-500X model is capable of up to 20 Amp load

Note 1: Pass level for CLASS 1 is 5 mA

Pass level for CLASS 2 is 1 mA

Note 2: Leakage test may be performed if for any reason a standard CLASS 1 or CLASS 2 is not possible.

RCD Test

- ▶ Trip Current: 2 to 500mA in 1mA steps. User selectable.
- ▶ Trip Time: 0 to 3,000ms at .001sec resolution.
- ▶ Current Ramp Trip Test: 0 to 500mA in 1mA increments.

Power Measurement

- ▶ Leakage Current: 0 to 30.0mA at 200 to 265V
- ▶ Load Current: 0.0 to 10Amp (20Amp for TnP-500X)
- ▶ Voltage: 200 to 265VAC
- ▶ Power Factor: 0.00 to 1.00
- ▶ Apparent Power: 0 to 2400VA
- ▶ Power 0 to 2400W

Meter Mode®

Green flashing LED denotes MM is engaged

- ▶ Load Current: 0.0 to 10Amp
- ▶ Voltage: 200 to 265VAC
- ▶ Apparent Power: 0 to 2400VA
- ▶ Power: 0 to 2400W

Black Phantom Extra Features

Meter Mode ® - (Independent of all other Tests)



How to activate Meter Mode

Note: Meter mode is accessed through the main menu screen not the new barcode screen. To access the main menu screen from power on hold the F3 key before switching the power on.

- Hold **F3** from main menu screen display for 2 seconds
- Screen will change to show volts by default when socket is (not powered)
- Plug appliance into testers , test socket , Press F3 to go into power mode and will show (**Warning device will be powered**)
- Press F3 again to continue and (**power the device**). If you continue the A-N LED on the tester will flash green ⚡ and device will power up. Otherwise press enter to exit.
- Press the enter key to stop the power mode and return to volts.
- Pressing F3 key will start power mode again.
- **TnP stays in Meter Mode** regardless of power on/off until you exit
- Pressing **Enter key** will **exit** meter mode and return the main menu.
- If the TnP is reset in meter mode it will return to meter mode when powered up again.

Meter Mode Uses

Meter Mode is a new and versatile function that will allow you to display Electrical Parameters from a Power outlet source or from the appliance under test.

Typical Applications

Example.: Measuring the Power of a bar heater, or electric power drill check the ratings and compare them to that on the compliance plate etc. Quick test of Power outlet Voltages in rooms or locations split from multiple circuits.

Meter Mode Features – (Four Discrete Options)

Electrical parameters are displayed as Volts, Amps, Watts, and Volt / Amps

These electrical parameters will be displayed on the Testers main screen display. Select from the 4 Test available in Meter Mode.

Meter Mode Measures and displays volts in AC, Current in Amps, Power Measurement in Watts and VA in Volt/AMPS

Explanation of Electrical Parameters

Volts

- A volt is the unit used to measure the energy available in the electrical current of a circuit. Voltage controls the available electrical power (wattage).

Amperes

An amp is the unit used to measure electrical current as it flows past a specified point.

Watts

- A watt is the unit used to measure the amount of actual flowing electrical energy.

Volt-Amps

- A volt-amp is the unit used to measure the apparent electrical power used by computing equipment. Mathematically, it is expressed as volts times amps (V*A).

***Meter Mode ® is a unique function of all TnTGen4 & TnP Models.**

Uses of Volt-Amp Measurement

- Because it represents the amount of energy computing systems may draw from a power grid, the VA is used to determine the kind of wiring and circuit breakers required to support the computing equipment in question.

Watts and VA (Detailed Explanation)

The power drawn by equipment is expressed in Watts or Volt-Amps (VA). The power in Watts is the real power drawn by the equipment. Volt-Amps are called the "apparent power" and are the product of the voltage applied to the equipment times the current drawn by the equipment. Both Watt and VA ratings have a use and purpose. The Watt rating determines the actual power purchased from the utility company and the heat loading generated by the equipment.

Safety Precautions

Make sure you have a clear and safe area when powering any equipment, remove any drills bits etc before testing any equipment. Always read equipment compliance plates.

Disclaimer

Meter Mode is to be used for quick simple indicative electrical parameter measurements. Providing reasonably accurate readings without the need to carry any other instruments. It is not intended to replace specific, more accurate individual test equipment, nor is its purpose to replace prescribed testing requirements. It in doubt please consult a qualified electrician when unsure or perform proper test procedures.

WinPATS Professional Asset Management Software

A Full Version of **WinPATS FE** Software is included with models **TnP-500PCI**.

WinPATS must be installed on a Laptop or PC from the Autorun menu on the CD provided. The USB-USB Driver supplied on the CD **must** also be installed!

*Brief Installation steps.

*Firstly make sure you have registered **WinPATS** and have the correct REGISTRATION KEY*

- ❖ Install WinPATS
- ❖ Install USB-USB Driver
- ❖ Locate Interface panel under Keyboard, USB PC socket R/H side 
- ❖ Connect from USB Port on TnP-500(X) to Laptop or PC – USB
- ❖ Check Device Manual for Comms Port Setting. See full WinPATS Manual for full details.
- ❖ Go to file option in WinPATS set Comm Port to same as the Silabs Driver Comm Port setting for communication to PC / Laptop.
- ❖ You now have the ability to upload / download data to & from the Test n Print 500(X) Unit.

***NOTE:** *Please familiarise yourself with, and refer to the **WinPATS** manual for full details.*

INSTRUMENTS

Disclaimer – E&OE

All specifications may be subject to be change by Wavecom Pty. Ltd. without prior notice.

Updated Specifications & Model changes may be found on the Wavecom website:- www.wavecom.com.au

At the time of developing this manual, all care and consideration for accuracy has been implemented. Wavecom accepts no responsibility for any errors or omissions in this document.

This is partly based on the fact that Electronics & Electrical testing and specifications worldwide are constantly changing and that Local, State and National Regulatory Authorities may also have differing or additional requirements.

It is strongly recommended the Purchaser check Local Regulatory Standards that may be applicable in your region.

No part of this document may be Reproduced, Copied, Modified or Utilised in any way or form without the permission of Wavecom Instruments in writing.

The TnP Series is Designed and Manufactured by:

Wavecom Instruments Pty. Ltd. Australia.

Head Office:

257 Grange Road, Findon
Adelaide, South Australia 5023.
www.wavecom.com.au

Tel.: +61 (0) 8 8243 3500

Fax.: +61 (0) 8 8243 3501

Email :

Enquiries: office@wavecom.com.au

Product: sales@wavecom.com.au

Technical: support@wavecom.com.au

WAVECOM TT040-50 Thermal Transfer BARCODE Printer

Please Note: there is a master **POWER SWITCH** at the rear r/h side of the printer. This should be left **ON** under all normal operation conditions.

Full instructions on the operation of the BARCODE printer can be found in the Owner's Manual located on the Main Software and Drivers CD supplied with the TnP-500 series unit.

Insert the disc into any PC, then from the Auto Run Menu select the tab for the Printer Manual. On this disc is information and operating instructions for the BARCODE printer, including steps with images on how to change the printer Media, Ribbon and general maintenance tips.

The user may either read this manual directly from the CD, or print a hard-copy for reference.



Black Phantom

The logo for Wavecom Instruments features a stylized, light blue graphic of a wave or a signal. The word "WAVECOM" is written in a light blue, sans-serif font, arched over the top of the wave. The word "INSTRUMENTS" is written in a light blue, sans-serif font, positioned below the wave. The entire logo is centered on a white background.

V100912